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THE RECENT TREND OF REAL WAGES

The rapid increase in the cost of living within recent years has given special significance to the study of fluctuations of prices and wages. For necessary data, American economists have learned to look to the federal Bureau of Labor Statistics—to use the present official designation so frequently changed since its establishment in the early eighties. Early studies were made in the sixth and seventh annual reports published in 1890 and 1891, but most important is the eighteenth annual report in 1903 entitled *Cost of Living and Retail Prices of Food*. The first half of this document presented the results of a comprehensive investigation as to the cost of living of a large number of families, mainly those of wage-workers. The second and smaller part contained an equally comprehensive study of retail prices of food in the same localities in which the cost of living was studied. The number of localities studied was scattered over 33 states, so that the material was sufficiently representative. Prices were studied for 30 articles of food, while the number of different grades for which prices were obtained substantially increased the statistical material. In all, over 5,000 schedules were obtained.

The most noteworthy feature of this investigation, however, was the collection of retail price quotations, not only for the year of investigation, but for a series of years preceding it, namely, 1890-1903. Material was thus obtained for gauging not only the fluctuations in price of any one article of food, but of food prices in general. In this manner an index number of food prices was secured. For the purpose of weighting the price fluctuations of the 30 different articles, use was made of the cost-of-living investigations, the relative price of each article being weighted by the relative importance of the article as measured by the average consumption of 2,567 families.

The accuracy of this method of weighting was often questioned, especially its adaptability to a long series of years, in view of the changes in the consumption habits of a shifting population. The difference between the weights ascribed to individual articles of food was great, from 1,531 units (out of a total of 10,000) in the case of fresh beef and down to 80 for cheese. But in accordance with well-recognized rules of statistical practice,¹

¹ Compare J. Laurence Laughlin, *Principles of Money*, pp. 159, 166; A. L. Bowley, *Elements of Statistics*, pp. 113, 117.

the weighting influenced the general average but little, as is shown by a comparison of the following two series:

TABLE 1.—*Relative retail prices of food. (Simple and weighted averages compared.)*

Year	Simple average	Weighted average	Difference	Year	Simple average	Weighted average	Difference
1890	102.1	102.4	+ .3	1897	96.3	96.3	—
1891	103.4	103.8	+ .4	1898	98.5	98.7	+ .2
1892	101.8	101.9	+ .1	1899	99.6	99.5	— .1
1893	104.1	104.4	+ .3	1900	101.5	101.1	— .4
1894	100.3	99.7	— .6	1901	105.5	105.2	— .3
1895	98.2	97.8	— .4	1902	110.9	110.9	—
1896	95.8	95.5	— .3	1903	110.9	110.3	— .6

The margin of variation between the two methods of weighting, for fourteen years, amounted to one point. As a greater degree of accuracy could not, in all reason, be claimed for the computation, this comparison shows that for all practical purposes the weighting of the 30 articles of food was an unnecessary refinement, and a simple averaging of the 30 price items was fully as reliable.²

This investigation furnished a basis for a study of the cost of living and its fluctuations during a period of great economic changes in the United States, embracing, as did the last decade of the nineteenth century, two economic crises and the Spanish-American War. But of itself it was not complete. In a study of budgets, both expenditures and incomes are of equal importance. Simultaneously with the study of prices and cost of living, the bureau therefore conducted a study of wages, the results of which were published as the nineteenth annual report, *Wages and Hours of Labor*. It covered 67 industries, with data for 519 distinctive occupations and 3,475 establishments.

Here, again, the bureau made a praiseworthy effort to compute a general index, both for wages per hour and for hours per week, so as to construct the most important curve of changes in weekly earnings. Again the question of proper weights presented itself.

² Compare, for instance, W. C. Mitchell, who in most of his studies of index numbers has "dropped the decimal places. Decimals make comparisons between different figures somewhat less easy, and the appearance of greater accuracy which they give to index numbers is delusive. The margin of error in the original data makes vain the pretension to accuracy within one tenth of one per cent" (*Business Cycles*, p. 94, note).

The method finally selected was that of a simple average for all occupations in each industry, and a weighting of the industries according to the aggregate wages paid in each industry as reported by the census of 1900.

The accuracy of this method has been criticised,³ but it is impossible to devise any method of weighting that might not be criticised by emphasizing qualifying conditions. As already indicated in connection with the retail prices, all reasonable methods of weighting, as in fact the method of simple averages, give substantially the same result. The bureau pointed this out in its report (p. 23) by comparing four methods of computing the index number.

- (1) Weighting according to aggregate wages paid in each industry as reported by the census of 1900.
- (2) Simple averages of all *occupations*.
- (3) Simple averages of all *industries*.
- (4) Weighting according to the number of employees in each industry as reported by the census of 1900.

The results of this comparison are shown in the following table:

TABLE 2.—*Comparison of the index numbers of wages per hour in the United States, as averaged by four methods.*

Year	1	2	3	4	Greatest variation
1890	100.3	100.3	100.5	100.4	.2
1891	100.3	100.3	100.5	100.2	.3
1892	100.8	100.6	100.7	100.7	.2
1893	100.9	100.5	100.4	100.9	.5
1894	97.9	98.0	98.0	98.0	.1
1895	98.3	98.7	98.7	98.4	.4
1896	99.7	99.6	99.6	99.9	.3
1897	99.6	99.5	99.3	99.6	.3
1898	100.2	100.1	100.2	100.1	.1
1899	102.0	101.9	102.1	101.8	.3
1900	105.5	104.8	105.0	105.4	.7
1901	108.0	107.2	107.8	107.9	.8
1902	112.2	111.2	111.5	111.9	.7
1903	116.3	114.8	114.6	116.0	1.7

Only in one year, then, was the difference between any two of the four methods as much as 1.7 points; but with the exception of that one year it never exceeded .8 point; and in ten out of fourteen years it was between .1 and .5 point. The comparison seems to indicate that, for the purpose of giving a general picture

³ See W. C. Mitchell, *Business Cycles*, p. 131.

of the trend of wages, any differences in the method of weighting are of little importance and that, therefore, any criticism of the method of weighting leaves the usefulness of the index unimpaired. Of course, this still leaves open the question as to the representative character of the material itself, upon which some cloud of doubt was thrown by the different results obtained by Professor Davis R. Dewey in his census report on *Employees and Wages* and by Professor H. L. Moore's conclusions as to changes in wages between 1890-1900 as deducted from the census material. But it has been shown recently by Professor Mitchell that the "apparent discrepancy" between Professor Moore's and the bureau's tables "is due almost wholly to differences in scope and method of construction,"⁴ and that the trustworthiness of the bureau's figures is confirmed, not discredited, by proper comparison with the data gathered by Professor Dewey for the census office.

The results of the study of hourly wages seemed to indicate a rise of 16 points in the period of thirteen years covered, 1890-1903. But within the same period a slight reduction in the average hours of labor had taken place (about 4 per cent), which affected to the same extent the weekly earnings. A correction was made for this influence, and the final index of weekly earnings appeared as follows:

TABLE 3.—*Index of weekly earnings in the United States, 1890-1903 (1890-1899 = 100.0).*

Year	Index	Year	Index
1890	101.0	1897	99.2
1891	100.8	1898	99.9
1892	101.3	1899	101.2
1893	101.2	1900	104.1
1894	97.7	1901	105.9
1895	98.4	1902	109.2
1896	99.5	1903	112.3

The two large volumes of official statistics referred to stood isolated, pregnant of rich results for the study of true wages, but barren until brought together. With the two indexes before him, any one was at liberty to draw his own conclusions, but these would lack official sanction, and therefore would fail to be thoroughly convincing.

In the special report of the Bureau of Labor prepared for the

Business Cycles, p. 131; *Quarterly Journal of Economics*, May, 1911, p. 615.

Louisiana Exposition, and known as Bulletin 54, the three curves were brought together: (1) the relative hours of labor, (2) the relative wages per hour, and (3) the relative retail prices of food (page 1128); but the next logical step was not taken, and the bearing of the indexes upon each other was not discussed. And yet, even a superficial glance at the diagram disclosed the significant fact that, while the green line (hours of labor) showed a gradual feeble slope downward, the black and red lines (indicating relative wages per hour and relative retail prices of food respectively) ran a remarkably parallel and close course.

The final synthesis was ventured for the first time in 1905 in Bulletin 57, soon after the two reports were published. It was done without much ostentation—one might even say, without sufficient emphasis. In a small table the index numbers for 1890-1904 for all the economic categories (hours per week, wages per hour, and retail prices of food, etc.) were placed in juxtaposition; and, in the official language of the report, "in addition two columns computed therefrom showing the relative purchasing power of wages . . . as measured by retail prices of food," the two columns showing this relation for (1) hourly wages and (2) weekly earnings per employee. The process of computation was simple and consisted in dividing the index of retail prices of food into the index of weekly earnings per employee.

After 1905, similar annual investigations and computations were made and published for several years. The index of the purchasing power of wages was brought forward for a year at a time, including 1907, in Bulletins 59, 65, 71, and 77, so that for a series of eighteen years a convenient measurement of the economic condition of the American wage-worker is available. The series of index numbers is quoted here:

TABLE 4.—*Index number of the purchasing power of wages as measured by retail prices of food, 1890-1907.*

Year	Index	Year	Index	Year	Index
1890	98.6	1896	104.2	1902	98.5
1891	97.1	1897	103.0	1903	101.8
1892	99.4	1898	101.2	1904	100.4
1893	96.9	1899	101.7	1905	101.4
1894	98.0	1900	103.0	1906	102.4
1895	100.6	1901	100.7	1907	101.5

This series has attained great popularity in American economic literature. Curiously enough, it owes a large part of its

popularity to a peculiar opinion that it produces evidence of a growing prosperity of the American wage-earner. The period covered is largely one of recovery from a distressing financial crisis and of subsequent triumph of the "stand-pat" attitude in politics as well as in economic policy. It was assumed that the series quoted furnished corroboration for the justice of this attitude. Scarcely any American elementary or popular book on economics published during this period failed to quote these figures as evidence of the continued progress of the wage-worker. Even the official Bulletin of Labor (No. 71, July, 1907) fails to escape this attitude, and triumphantly states that "in 1906 the purchasing power of an hour's wages as expended for food was 1.4 per cent greater than in 1905" and "a full week's wages in 1906 would purchase 1 per cent more food than a full week's wages in 1905" (p. 2). The use repeatedly made of this index for purposes of political argument can readily be imagined. Says the Republican campaign textbook for 1904, "Considering both wages and cost of living, the workingman has benefited to a measurable degree from the increase in wages despite the increase in cost of living and shortening of working hours" (p. 216). Similar quotations may be found in any of the subsequent "text-books." In fact, it is this use of the index that has, perhaps, tended to throw some discredit upon the very figures. It was even charged in the heat of political controversy that the figures were not trustworthy, because they were compiled by a Republican Bureau of Labor, for the use of a Republican administration.

How utterly unjust any such charge must be, the figures themselves amply demonstrate. A continuous increase in the purchasing power of wages from year to year, be it ever so slight, would not fail to show a cumulative effect of some importance. But the figures quite plainly fail to show any such regularity. On the contrary, they indicate a tendency to fluctuate, evidently through faulty adjustment of wages to cost of living, but, on the whole, the fluctuations from year to year do not obscure the tendency of the line to remain on the same level.⁵

This can easily be shown by the method of smoothing the curve through the use of five-year averages. (See Table 5.)

If anything, real wages during the latter part of the period show a tendency downward. Purchasing power seems to have

⁵ This argument has been stated briefly by the author in his *Social Insurance*, p. 38.

TABLE 5.—*Index numbers of purchasing power of wages by five-year periods, 1890-1907.*

Five-year period	Index	Five-year period	Index
1890-1894	98.0	1897-1901	101.9
1891-1895	98.4	1898-1902	101.0
1892-1896	99.8	1899-1903	101.1
1893-1897	100.5	1900-1904	100.8
1894-1898	101.4	1901-1905	100.8
1895-1899	102.1	1902-1906	100.7
1896-1900	102.6	1903-1907	100.8

been highest just toward the close of the nineteenth century, when the level of wages ran a little ahead of the price level.

Of course, the price level of food-stuffs alone may not furnish a sound basis of judgment as to real wages, *i.e.*, the purchasing value of money wages; and, unfortunately, there are not sufficient data as to the fluctuations in the retail price level of other items of the wage-worker's consumption, such as clothing, rent, etc. The bureau has always been careful to specify that its index represents only "purchasing power measured by retail prices of food." Nevertheless, since food represented according to the investigation of the bureau (covering 11,156 families) over 43 per cent of the total expenditures, it may serve as a useful basis, for lack of a more complete one. Moreover, since Chapin's study of *The Standard of Living in New York City*, referring to a period five years later than that of the Bureau of Labor, shows exactly the same percentage of income (43.5 per cent) expended for food, though the price level of food has materially increased during the intervening five years, it may be assumed that there must have been approximately the same rise in all other prices.

As a matter of fact, the general agitation for tariff revision was called forth largely by prices other than of food materials. Schedule K may have been the true cause of the Republican downfall—it did not refer to food. And while opinions may differ as to the final effect of the Democratic tariff upon the general price level, it is quite certain that until it was enacted the trend of prices of textiles, leather, fuel, and paper had been upward, as a study of wholesale prices will readily demonstrate.

Bulletin 77, dated July, 1908, and containing data for 1907, was the last in which the index of real wages was given. For a time the studies of both retail prices and wages were suspended by the bureau. As far as the writer is aware, no official explanation

of the discontinuance of these two investigations was ever made. Statements were current in Washington that the decision to discontinue these studies was due to severe criticisms by noted economists of the statistical methods used by the bureau in its computation. But a more plausible explanation was the extreme overcrowding of the bureau with work upon the voluminous *Report on Condition of Woman and Child Wage-Earners* which was ordered by Congress in January, 1907, and was not completed until late in 1911. For a while it was feared that both lines of periodical inquiry were to be discarded altogether. Evidently, however, the demand for more recent data showed itself as soon as those of 1907 became obsolete. The unusual rise in the cost of living, which began to be felt at that time, underscored the importance of more recent data; and, as soon as the pressure of the woman and child labor investigation abated, the work was resumed, and the first results of the new series appeared towards the close of 1912 as Bulletin 105.

To the disappointment of many students, this bulletin contains only one half of the complete story, namely, the study of retail prices. It contains the data for the entire four-year period, 1907-1911, thus completing the series from 1890 to 1907. The importance of a continuous series was thus recognized. Furthermore, a special effort has been made since then, not only to publish the figures regularly, but expeditiously, and bimonthly reports have appeared on retail prices.⁶

The five-year interruption in the preparation of this series did not fail to cause certain difficulties. It was not always easy to obtain price quotations for the entire period. Besides, considerations of speed and cost may have had some weight. But the new series is very much more restricted than the older one. Instead of 30 articles of food only 15 are now quoted; instead of 68 localities, only 39 of the most important industrial cities; instead of over 1,000 dealers, as in 1907, only about 675 are now furnishing quotations. Of these changes, that reducing the number of articles quoted is perhaps the most important one.

(a) Articles quoted up to 1907, and also for 1907-1913:

1 Sugar, granulated	6 Lard, pure	11 Sirloin steak
2 Wheat flour	7 Corn meal	12 Ham, smoked
3 Butter, creamery	8 Eggs, strictly fresh	13 Pork chops
4 Milk, fresh	9 Hens	14 Bacon, smoked
5 Rib roast	10 Round steak	15 Potatoes, Irish

⁶ Bulletins 105, 106, 108, 110, 113, 115, 121, 125, 130, 132, 136, 138, 140.

(b) Articles quoted up to 1907, but omitted for 1907-1913:

1 Coffee	6 Molasses	11 Prunes
2 Tea	7 Beef, salt	12 Fish, salt
3 Veal	8 Beans, dry	13 Mutton
4 Vinegar	9 Pork, salt	14 Apples, evaporated
5 Bread, wheat	10 Fish, fresh	15 Rice

It is possible that the omitted articles are those which have not risen in price quite as violently as some of those retained. The prices of coffee, tea, molasses, rice, prunes, salt beef or pork, etc., have surely not been so sensitive to price increase as were sirloin steak, pork chops, or strictly fresh eggs. It may be questioned how far *any changes* in the price of such luxuries as sirloin steak, pork chops, and eggs "strictly fresh," would affect the status of the wage-worker's family. From this point of view the earlier figures would appear to be somewhat more reliable, yet we have the official statement of the bureau (Bulletin 105, p. 6) that "these fifteen articles represent approximately two thirds of the expenditures for food by the average workingman's family." One can only assume that some of the terms may have a trade meaning of a somewhat restricted character.⁷

Because of the many changes, the bureau found it necessary to recompute the earlier index number for the entire series 1890-1907 on the basis of the smaller number of articles. (See Table 6.)

A comparison of the old and new weighted index numbers for the period 1890-1907 indicates that for the last decade the divergence has become quite important, and that the new index, based upon a smaller number of articles, shows a greater rise than the old index. This comparison corroborates the suspicion, expressed above, that the new index number is somewhat less trustworthy, not only because it is based upon a smaller number of articles and quotations, but also because these happen to be articles especially sensitive to the upward movement of prices. For 1907, the last year for which a comparison is possible, the difference is 5.3 points.

Another evidence of the same tendency is obtained when the weighted average is compared with the simple average. It was shown above that the differences between the two averages for the old series never exceeded .6 points and that the average difference for eighteen years was only .2 points. In the new series the differences between the two averages are very much greater,

⁷ See Mitchell's criticisms on the same point, *Business Cycles*, p. 95.

TABLE 6.—*Comparison of the old and new index numbers of retail prices of food in the United States.*

Year	Weighted averages		Simple averages	
	Old index 30 articles	New index 15 articles	Old series 30 articles	New series 15 articles
1890	102.4	101.9	102.1	102.0
1891	103.3	103.4	103.4	103.6
1892	101.9	101.6	101.8	101.7
1893	104.4	104.1	104.1	104.6
1894	99.7	99.2	100.3	99.5
1895	97.8	97.1	98.2	97.2
1896	95.5	95.2	95.8	94.9
1897	96.3	96.7	96.3	96.4
1898	98.7	99.7	98.5	99.4
1899	99.5	100.8	99.6	100.6
1900	101.1	103.0	101.5	102.9
1901	105.2	108.5	105.5	109.5
1902	110.9	114.6	110.9	116.8
1903	110.3	114.7	110.9	116.9
1904	111.7	116.2	111.6	118.3
1905	112.4	116.4	112.5	118.3
1906	115.7	120.3	116.2	122.4
1907	120.6	125.9	120.6	128.0
1908	—	130.1	—	132.5
1909	—	137.2	—	140.3
1910	—	144.1	—	148.5
1911	—	143.0	—	146.9
1912	—	154.2	—	157.9
1913	—	163.4	—	167.0

especially in later years. For 1890-1900 the difference averages .25, for 1901-1907 nearly 2.0 points, and for 1908-1913 as much as 3.5 points, rising in 1911 to 3.9 and in 1910 to 4.4 points. To the second series of data the rule therefore does not apply that the weighted average and the simple average give about the same results. This alone throws some doubt upon the degree of accuracy of the revised index number, although even then the difference is not sufficiently great to make it altogether unreliable in gauging the tendency to higher prices.

While the change in the methods of the bureau has, unfortunately, somewhat reduced the accuracy of the results, nevertheless, the resumption of the publication has been welcomed by American students. The evidence as to the increase in prices (even if possibly it be somewhat exaggerated) is conclusive. From 1907 to 1913 the prices of food rose from 125.9 to 163.4, or 37.5 points, equal to nearly 30 per cent of the prices of 1907. For a decade

the increase was 48.7 points, or 42 per cent. For the period of seventeen years the increase was 68.2 points, or 72 per cent.

Expressing it in a different way, on a seventeen-year basis the annual increase was 4.2 per cent; on a ten-year basis the increase was 4.8 per cent; on a seven-year basis 5.3 per cent. Within the last two years (1911-1913) the increase was 20.4 points, or 14.3 per cent—over 7 per cent per annum. Not only have prices risen, but the speed of the upward movement has been increasing.

These figures as to the retail prices of food did not constitute a new discovery. The country, even without any exact measurement, was fully aware of the situation. Not only was there general complaint of the "high cost of living" (with its corresponding efforts to silence the inevitable, to obscure the self-evident, by noisy attacks upon the "cost of high living"), but strenuous efforts were made by millions of wage-workers to adjust their incomes to these new price conditions. How much of the strike movements of the last five or ten years, of the "disorder and anarchy," of sabotage, and I. W. W.-ism may directly be traced to the stimulus of high prices, is a problem for the future investigator which need not be discussed here. As a result of all these efforts, peaceful and otherwise, there has undoubtedly been an increase in wages, whether granted voluntarily, or by arbitration, or grudgingly under pressure of strikes or governmental investigations. Frequently this very increase of wages is being urged as an argument for further increase in prices.

For all these reasons, the question as to how far the adjustment between prices and wages has been preserved is growing in importance. After the publication of the price index had been resumed, statisticians naturally looked forward to the completion of the picture by the publication of the wage index and the resultant index of real wages. Another year elapsed after the publication of Bulletin 105 containing prices for 1907-1912; and only in August, 1913, did the first bulletin containing new data in regard to wages appear. Up to the date of this writing (June, 1914), *i.e.*, within seven or eight months, seven bulletins, dealing with wage data had appeared (Bulletins 128, 129, 131, 134, 135, 137, 143). No complaint can be made, therefore, as to the quantity of statistical material published.

Unfortunately, the method of study and preparation of this material has been greatly changed. As was shown above, this was true of price statistics as well. But while in the latter case

the differences were such as not to interfere greatly with a comparison with earlier years, the changes in the study of wage statistics were very much greater and the comparisons made very much more difficult. In fact, at first glance, such comparisons appear impossible. This seems to be the viewpoint of the present Bureau of Labor Statistics, inasmuch as the index number of real wages (in terms of the food-purchasing power of weekly earnings) has been discontinued, and, as it seems at present, permanently. It is proper, nevertheless, to inquire whether, notwithstanding the many changes in the presentation of the wage statistics, they may not be utilized after all, for the reconstruction of the real wage index by private effort.

Of the seven bulletins referred to, five deal with statistics of wages and hours of labor in separate industries:

- Bulletin 128, Cotton, Woolen, and Silk Industries.
- “ 129, Lumber, Millwork, and Furniture Industries.
- “ 134, Boot and Shoe and Hosiery and Knit Goods Industries.
- “ 135, Cigar and Clothing Industries.
- “ 137, Building and Repairing of Steam Railroad Cars.

Altogether, eleven industries have thus been covered. With the exception of the cigar and clothing industries, all the studies fill in the gap left by the discontinuance of the old series in 1907.

These eleven special investigations are much more comprehensive and go into much greater detail than did the earlier reports. The presumption, therefore, is necessarily of greater accuracy in favor of the recent data, or just the opposite of what we found to be the case in regard to retail price statistics. Not only average hours and average wages are given, but also the distribution by a large number of hour and wage groups. A somewhat larger number of separate occupations in each industry is studied and a very much larger number of establishments is drawn upon. Thus, in the railroad car industry, 70 establishments supplied data for 1911-1912 as against 49 for 1890-1903; in the lumber industry 301 against 56; in the furniture industry 199 as against 58, etc. For each of the nine large industries, therefore, a comparison for the entire period is possible, and, as a matter of fact, is contained in the bulletins enumerated.

How far are these nine industries characteristic of the wage movement as a whole? A statistical test of this will be made presently. At this place it is necessary to point out the following:

The nine industries in the series of 1890-1907 were represented by 93 occupations; in 1911-1912, 151 occupations were studied. Of these, 68 were identical for the entire 23-year period. It is reasonable to assume that most of the 25 occupations for which wage quotations were discontinued are found under different technical designations among the 73 occupations added.

The original series in 1907 contained wage data concerning 41 industries, and, within those, concerning 333 occupations. Thus the nine special industries covered by the reports issued since 1903 cover about 30 per cent of the occupations included in 1890-1907. This does not complete the sources of available material. Bulletin 131, also dated August 15, 1913, is entitled *Union Scale of Wages and Hours of Labor, 1907 to 1912*. It contains the data for the entire six-year period for over 40 trades (practically 50, counting in closely related trades), within six industries: (1) baking, (2) building, (3) marble and stone, (4) metal trades, (5) printing, book and job, (6) printing, newspaper. For these trades, 39 cities in 32 states were studied.

The peculiarity of the method used in this bulletin is that in constructing an index number a new basis, namely, the year 1907, was taken. In all the index numbers referred to, the base (100), as is well known, is the average for 1890-1899. It is possible to criticise this base and to question its advantage over the simpler method of taking the starting point (1890) as 100. But, as the results would not in the least be affected thereby, it is not worth while to argue the point. Any base for the index number is equally good provided it is adhered to. As a matter of fact, the same base was used, not only for all investigations (wages, hours of labor, retail prices, wholesale prices, number of persons employed, and true wages) in 1890-1907, but in the later studies for 1907-1913 for prices as well.

The change is probably explained by the fact that the quotations for 1907-1912 are for *union* wages and hours, while those for 1890-1907 are not limited to union labor. No explanation of the change of method is made, but data of the earlier investigations are reproduced, and in microscopic type—a note to the heading of the table—it is stated that it was “computed from the pay-rolls of employers of union labor and also of employers of non-union labor.”

No apology for this lack of a basis for a comparison is made, but since the year 1907 is included in both series it would seem

not altogether impossible to obtain such a basis. I have checked up half a dozen trades, comparing the actual wages for 1907 as given in the older report of 1908 for union and non-union labor together, and in the new report for union labor only, and found the results to be practically identical. In the case of bricklayers the average wage per hour for union and non-union labor together was \$.6313 and for union labor only \$.6280 (sic!); for carpenters \$.4338 and \$.4384; for stone-cutters \$.547 and \$.538; for blacksmiths \$.329 and \$.343.⁸ In other words, as far as the enumerated trades are concerned, either the union scale of wage is practically the scale of wages for the entire trade, or in the earlier investigations union shops largely predominated in the material gathered by the bureau. In any case, the practical conclusion is that it was quite safe to retain the old base for the index, and that a comparison for the entire period of 23 years is possible for the trades treated in Bulletin 131.⁹

To sum up the discussion of the last few pages, we have no figures giving the change of wages since 1907 to 1912 for all the 41 industries (and 333 occupations) upon which the old index number of wages in general was based. But we *do* have data for 16 industries, covering 241 occupations of which 141 are identical with those of the early series.

The situation, therefore, is somewhat similar to that in the study of the retail prices, where instead of 30 articles only 15 are studied at present. This reduction in the number of articles studied did not prevent the bureau from continuing to build up its retail price index. It has been shown that while this change did somewhat interfere with the accuracy, it did not altogether destroy

* Even these slight differences are probably due to the different methods of computing the average. I have used the simple averages of all quotations given—the only course possible with the material at hand in Bulletin 131.

⁹ As the purpose of wage statistics is primarily to permit comparisons and to study fluctuations, the recent tendency of the bureau to change the base in the computation of wage indexes is to be regretted. A recent bulletin (No. 143) issued March 4, 1914, intends to bring forward the data of Bulletin 131 for one year. It contains statistics regarding the union scale of wages and hours of labor for 1912 and 1913 for 63 trades. Of these, 50 are contained in Bulletin 131, where the figures are given for 1907-1912. A comparison for the seven years 1907-1913 is given on pages 7-13. But the base for the indexes is again a new one—namely, the wages, respectively hours of labor, for 1913. Nothing is gained and a good deal is lost through such constant changes in the base of computation of relative figures.

the usefulness of the final results. Why does not the same reasoning apply to the study of wages?

For certain purposes averages and indexes may be absolutely useless. An average or an index number cannot be used when the exact wage conditions of an industry or a locality must be ascertained. But for the study of broad tendencies, an average still represents a very convenient method, and when the tendency studied applies to many industries and many localities, nothing can supplant an index number. In any case, it cannot be held consistently that averages and index numbers are applicable to the study of prices and not applicable to the study of wages and hours of labor. It cannot be held consistently that an average and index number is applicable to the study of wages in one industry and not for industry as a whole. For, truly, the fluctuations of wages in any of our large industries as between one occupation and the other, are nearly as great as they are for wages in the world of labor as a whole.

It seems, therefore, quite a justifiable statistical step to endeavor to obtain an index of wage fluctuations in general from the material available for 1907-1912.

The effort to do so creates certain difficulties. The private statistician has not at his disposal the facilities for making lengthy computations which the bureau has omitted in many cases. Thus the studies up to and including 1907 have always included not only the index of wages-per-hour and hours-per-week, but also that for earnings-per-week. This is a simple operation requiring a multiplication of one index by the other. It is the method used up to 1907 and there seems to be no good reason why these computations were discarded. The theoretical objection may be advanced that the hours given are "normal full time, hours per week," and not actual hours. But if the method is used in Bulletin 137 for wages in railroad car building, then why not in all other bulletins? In Bulletin 131, where the "union scale of wages and hours of labor 1907-1912" is studied, there are no such derivative columns for "earnings per week," while they may be found in Bulletin 143 for 1907-1913. But as the latter bulletin uses an entirely new base (wages of 1913 instead of wages 1890-1899) a recomputation of the index becomes necessary. All of this may succeed in preventing any large use of the various figures recently published.

In the following table all the material available at present has been brought together. For the nine industries enumerated the indexes were taken as published (weighted averages of the occupational indexes). These differ, for 1890-1907, from the indexes published in Bulletin 77 (pp. 126-132) because in the earlier bulletin the industry indexes were simple averages of occupational indexes, while in the recent investigation weighted averages were computed. In the Car Building bulletin (No. 137) for some reason no industry index was published. Therefore, the simple average was taken for 1890-1907 from Bulletin 77 and for 1908-1912 similar simple averages were computed. The same process was used for the six trade groups, and the quotations for 1908-1912 obtained from Bulletin 131 reconverted to the older basis. For comparative purposes the old index was included, and, by simple averaging of the fifteen columns, a new index was obtained for the entire period.

The material may be admitted to be fragmentary and incomplete, nor are all the averages uniformly computed. The nature of the material was such that two or three different methods had to be used in obtaining averages. The question may be raised as to whether the juxtaposition of the 15 indexes serves any purpose at all. An answer is found in a comparison between the last column, which is a simple average of the 15 industrial indexes and the old wage index as printed in the first column. Such a comparison is possible for eighteen years (1890-1907). In only two years out of the eighteen is the difference as great as one point; and the average difference is less than .5 point. Of course, no one would claim for any wage index a greater accuracy than that. We are justified, therefore, in drawing the conclusion that the fluctuations of wages in 1907-1912 in the fifteen industries and trade groups for which material is available, are a proper measure of the fluctuations of wages in American manufacturing industry in general.

On this assumption the wages-per-hour index during these six years has fluctuated as follows:

1907,	129.3	1910,	134.0
1908,	128.5	1911,	136.3
1909,	129.9	1912,	141.5

showing an increase of 12.2 points or 9.4 per cent in five years.

A correction, however, is necessary for the changes in the average hours of labor. The general index of hours of labor was also

TABLE 7.—Index of wages per hour.

Year	Old index number	Cotton goods	Woolen goods	Silk goods	Boots and shoes	Knit goods	Lumber	Millwork	Furniture	Car building	Building trades	Bakers	Marble and stone cutters	Foundry and machine shops	Printing, book and job	Printing, newspapers	Average new index	Difference between old and new index
1890	100.3	101.6	99.6	98.6	98.5	105.6	101.9	99.2	100.5	102.9	97.0	99.3	98.5	99.2	97.8	103.0	100.2	.1
1891	100.3	99.4	99.3	93.2	97.5	106.9	101.4	100.4	101.5	102.4	97.9	99.9	99.5	100.3	99.6	99.6	99.9	.4
1892	100.8	99.2	100.7	98.6	99.3	100.3	101.5	100.1	102.5	101.5	99.9	100.3	100.3	102.7	99.2	98.8	100.3	.5
1893	100.9	105.0	105.7	102.0	100.6	100.1	99.9	100.0	101.1	104.0	100.0	100.2	99.7	101.6	100.2	98.0	101.2	.3
1894	97.9	98.9	94.9	102.9	99.8	96.7	96.7	97.0	99.4	97.8	97.6	98.4	98.0	98.7	99.6	97.4	98.9	1.0
1895	98.3	98.2	95.3	101.5	101.4	102.8	101.5	101.4	102.8	97.8	98.4	98.7	97.0	99.1	99.5	96.3	98.6	.3
1896	99.7	104.1	98.1	106.5	100.5	99.3	97.4	99.3	97.9	97.6	99.9	99.6	101.0	100.5	100.3	98.6	100.0	.3
1897	99.6	100.4	100.4	99.1	100.7	96.1	97.7	100.0	100.2	98.2	101.3	99.8	101.6	99.7	99.2	99.2	99.6	—
1898	100.2	96.7	103.3	98.4	100.5	96.4	101.5	101.7	98.0	98.0	102.8	100.6	101.2	99.0	101.2	102.8	100.2	.1
1899	102.0	95.8	102.3	97.4	101.8	93.2	104.5	104.1	102.0	99.8	105.3	103.1	103.2	99.1	108.6	106.1	101.4	.6
1900	105.5	108.4	111.3	98.4	104.1	95.4	105.4	105.9	102.4	100.7	109.9	106.6	104.9	101.5	109.3	106.3	104.7	.8
1901	108.0	108.8	111.9	98.1	104.1	102.0	108.6	108.6	107.3	101.7	114.5	108.8	109.0	104.7	110.7	106.3	107.0	1.0
1902	112.2	113.3	114.9	101.4	108.0	111.0	112.1	112.5	114.1	105.7	121.1	113.9	118.5	108.2	114.3	109.3	112.0	.2
1903	116.3	117.5	118.7	102.6	113.2	117.6	114.2	116.5	115.2	111.5	126.8	118.9	118.6	112.2	116.1	113.4	115.5	.8
1904	117.0	117.1	115.4	101.8	116.9	114.8	112.3	115.7	117.5	116.2	129.7	121.1	118.9	113.9	118.9	114.1	116.8	.7
1905	118.9	118.7	119.3	102.5	119.9	119.9	116.3	116.7	121.0	114.9	132.2	123.5	119.3	114.0	120.6	116.1	119.6	.6
1906	124.2	131.3	127.1	106.1	121.8	126.9	124.4	120.6	125.7	118.5	140.2	127.4	121.3	117.9	125.9	118.4	123.6	.5
1907	128.8	149.8	135.3	112.1	128.0	133.4	129.6	124.5	127.3	124.4	144.6	128.9	125.7	121.4	131.0	122.6	129.3	.6
1908	—	148.4	128.1	109.2	125.5	133.7	118.7	123.4	127.5	122.8	146.9	133.9	126.1	122.9	136.0	124.7	128.5	—
1909	—	143.0	129.0	110.5	130.4	134.1	121.6	124.9	126.7	120.5	150.2	140.0	128.1	124.4	139.3	126.0	129.9	—
1910	—	147.7	132.5	112.5	129.6	135.5	130.0	127.8	130.5	132.3	153.1	147.6	128.1	130.0	143.4	129.2	134.0	—
1911	—	149.1	133.3	113.3	131.7	135.8	129.9	129.0	132.1	135.2	157.6	155.6	129.0	133.8	148.2	130.9	136.3	—
1912	—	164.1	149.1	117.1	132.8	143.7	131.5	132.3	135.1	135.9	159.4	167.3	133.9	136.3	150.6	133.4	141.5	—

TABLE 8.—*Index of hours per week.*

Year	Old index	Cotton goods	Woolen goods	Silk	Boots and shoes	Knit goods	Lumber	Millwork	Furniture	Car building	Building trades	Bakers	Marble and stone cutters	Foundry and machine shops	Printing, book and job	Printing, newspapers	Average of preceding indexes	Difference between old and new index
1890	100.7	100.5	101.0	102.6	100.3	101.1	100.4	101.3	101.3	101.6	102.5	100.8	101.5	100.5	101.0	100.2	101.1	.6
1891	100.5	101.2	101.0	102.9	100.6	101.1	100.2	100.6	100.7	101.1	101.8	100.8	100.1	100.4	101.0	100.1	100.9	.4
1892	100.5	101.6	101.0	101.9	100.2	101.2	100.2	100.7	99.8	101.6	100.7	100.9	100.2	100.2	100.5	100.6	100.7	.2
1893	100.3	100.0	99.5	98.8	100.0	100.5	100.0	100.1	99.9	101.2	100.5	100.5	101.0	100.0	100.4	101.3	100.4	.1
1894	99.8	97.5	99.0	98.6	100.0	94.8	100.0	100.3	98.2	97.1	100.7	100.4	100.5	99.9	100.1	100.5	99.2	.6
1895	100.1	99.8	100.1	98.5	100.0	100.4	99.9	99.7	99.8	98.9	100.3	99.9	100.1	100.1	100.2	100.4	99.8	.3
1896	99.8	99.5	100.1	99.0	100.0	100.3	100.1	99.0	100.0	98.8	99.2	99.6	99.9	99.8	100.1	100.2	99.7	.1
1897	99.6	99.1	98.4	99.1	99.8	100.3	99.9	99.6	99.6	98.0	98.6	100.2	99.4	99.7	100.2	100.0	99.5	.1
1898	99.7	100.3	98.9	99.3	99.7	100.3	99.6	99.4	100.4	100.8	98.1	99.1	99.2	99.9	99.4	99.1	99.6	.1
1899	99.2	100.3	100.0	99.5	99.6	100.2	99.8	99.2	100.3	101.1	97.5	97.8	98.1	99.4	97.2	97.9	99.2	.1
1900	98.7	100.1	99.8	99.6	99.8	98.9	99.5	98.9	100.2	101.4	95.5	96.9	97.2	99.2	95.1	97.6	98.6	.1
1901	98.1	99.9	99.9	99.2	99.6	98.8	99.3	99.3	99.3	100.6	96.3	98.1	96.0	99.2	94.4	97.4	98.1	.1
1902	97.3	99.5	99.8	98.7	98.4	98.9	98.7	97.7	98.3	100.6	92.6	95.8	95.5	96.6	93.2	97.1	97.4	.1
1903	96.6	99.3	98.7	98.8	97.0	97.9	98.3	97.2	98.1	98.1	91.8	93.9	94.0	95.4	93.1	96.2	96.7	.1
1904	95.9	99.2	97.9	97.2	96.8	97.7	97.8	97.9	97.3	96.8	91.3	93.6	94.0	94.6	92.0	95.7	96.0	.1
1905	95.9	99.2	98.5	98.2	96.8	97.7	97.6	98.1	96.6	96.2	91.2	92.5	94.2	94.8	92.0	96.2	96.0	.1
1906	95.4	98.7	98.4	98.4	96.3	97.2	96.6	96.9	95.8	95.9	90.9	91.8	93.6	94.8	90.7	95.4	95.4	.1
1907	95.0	97.5	97.9	98.0	96.0	96.8	96.4	96.7	95.9	94.9	90.4	91.6	93.4	94.5	90.1	94.8	94.5	.1
1908		96.3	97.7	97.6	96.5	96.6	96.6	96.7	95.9	94.9	89.4	89.7	93.3	94.5	87.4	94.5	94.5	.1
1909		96.4	97.8	97.6	95.7	96.5	96.5	96.7	95.5	95.4	90.2	88.6	93.2	93.8	86.8	94.4	94.4	.1
1910		94.1	96.1	97.4	95.1	94.8	96.5	96.8	95.1	95.0	89.7	86.8	93.0	93.4	86.0	94.0	93.8	.1
1911		94.1	96.2	97.4	95.3	94.7	96.5	96.9	94.5	94.6	89.4	85.1	92.9	92.8	85.5	93.9	93.8	.1
1912		92.4	94.6	96.6	93.9	93.1	96.6	96.2	93.9	94.4	89.2	81.2	91.8	92.8	85.5	93.8	93.0	.1

discontinued in 1907. This index is brought up to 1912 in Table 8, from the same material and by the same methods as used in the study of wages.

The correspondence between the two indexes here is still greater. The changes in hours of labor may therefore be characterized during the last six years as follows (a decrease of 2.2 per cent in five years):

1907,	95.1	1910,	93.8
1908,	94.5	1911,	93.3
1909,	94.4	1912,	93.0

With the aid of these important facts, the important index of the movement of real wages may be reconstructed and brought down to 1912, which is done in Table 9.

TABLE 9.—*Computation of index of real wages, 1890-1912.*

Year	Hours per week	Wages per hour	Full time weekly earnings per employee	Retail prices of food	Purchasing power meas- ured by retail prices of food	
					Hourly wages	Weekly earnings
1890	101.1	100.2	101.3	101.9	98.3	99.4
1891	100.9	99.9	100.8	103.4	96.6	97.5
1892	100.7	100.3	101.0	101.6	98.7	99.4
1893	100.4	101.2	101.6	104.1	97.2	97.6
1894	99.2	98.9	98.1	99.2	99.7	98.9
1895	99.8	98.6	99.2	97.1	101.5	102.2
1896	99.7	100.0	99.7	95.2	105.0	104.7
1897	99.5	99.6	99.1	96.7	103.0	102.5
1898	99.6	100.2	99.8	99.7	100.5	100.1
1899	99.2	101.4	100.6	100.8	100.6	99.8
1900	98.6	104.7	103.2	103.0	101.6	100.2
1901	98.1	107.0	105.0	108.5	98.6	96.8
1902	97.4	112.0	109.1	114.6	97.7	94.3
1903	96.7	115.5	111.7	114.7	100.7	97.3
1904	96.0	116.3	111.6	116.2	100.0	96.0
1905	96.0	119.6	114.8	116.4	102.8	98.6
1906	95.4	123.6	117.9	120.3	102.7	98.0
1907	95.1	129.3	123.0	125.9	102.7	97.7
1908	94.5	128.5	121.4	130.1	98.8	93.0
1909	94.4	129.9	122.6	137.2	94.7	89.4
1910	93.8	134.0	125.7	144.1	93.0	87.2
1911	93.3	136.3	127.2	143.0	95.3	88.9
1912	93.0	141.5	131.6	154.2	91.8	85.3

In brief, the salient features of the results of the economic development during the last five years, as they appear in the preceding table, may be summarized thus, as far as the figures combined and computed here may be relied upon:

(1) From 1907 to 1912, the wages per hour rose from 129.3 to 141.5, 12.2 points on the recognized scale or 9.4 per cent.

(2) During the same time the hours of labor declined from 95.1 to 93.0, 2.1 points or 2.2 per cent.

(3) The weekly earnings increased from 123.0 to 131.6, only 8.6 points or 7 per cent.

(4) The retail prices of food increased from 125.9 to 154.2, 28.3 points or 22.5 per cent.

(5) The purchasing power of an hour's wages (as expressed in cost of food) decreased from 102.7 to 91.8, 10.9 points or 10.6 per cent.

(6) The purchasing power of weekly wages, or the true weekly wages, have decreased still faster, from 97.7 to 85.3, 12.4 points or 12.7 per cent.

Before these sweeping conclusions may be accepted, their general trustworthiness should be carefully scrutinized. It will be argued with justice that they are based upon an indifferent assortment of statistical data. Even up to 1907 the "index of real wages" derived from the above table is much more gloomy than the official index published in Bulletin 77 for the last time. The official index showed the real wages holding their own up to 1907, with even a slight increase over the standard 1890-1899, while the index here computed shows a loss of 2 per cent by 1907. With such fluctuations due to different methods of computation, what may the whole statistical fabric, here so carefully woven, be worth?

It is necessary, therefore, to examine the table critically, comparing it column by column with the similar table published in Bulletin 77 (p. 7). Such an examination will show that the index of "hours of labor," although independently computed here, is practically identical with the official index (in 1907, 95.1 against 95.0). The same is true of the index of wages per hour (129.3 as against 128.8 in 1907); and as a result the derivative indexes of "full time weekly wages" are not very far apart (in 1907, 123.0 against 122.4).

The real difference is found in the "retail prices of food" (in 1907, 125.9 against 120.6 in the old index). This difference, however, it will be remembered, has not been introduced by the writer. It is the new "official" index of Bulletin 105 as compared with the old "official" index of Bulletin 77. The reason for the difference has already been indicated here (see p. 801), and the suggestion was made that because of a limited, and perhaps one-sided, selection of the list of food-stuffs, the new index may somewhat exaggerate the upward trend of prices.

But, even allowing some 5 or 6 per cent for this possible exaggeration, it still remains true that the loss of real wages within

the last five years was about 7 or 8 per cent, and within the last twelve years some 10 per cent. This is surely a grave statistical conclusion. It makes the continuing of the annual study of both wages and prices still more necessary, the discontinuance of the annual reports still more regrettable. Particularly unfortunate is the discontinuance of these reports just at the time the tide is turned.

Over and above the cold statistical results, is the light which these figures throw upon economic problems of great magnitude. Many professional economists have complacently assumed that the charges of radical critics of modern industrial organization have been greatly exaggerated. Hundreds of writers have stoutly maintained that while the rich may be getting richer, the "poor" are also getting a constantly growing return for their labor. And yet, the analysis of a large volume of statistical observations carried on for over ten years leads to the following inevitable conclusion.

In years of falling or even slowly rising prices, the American wage-worker was able to hold his own or to improve his condition to a slight extent. But when confronted with a rapidly rising price movement (accompanied as it was by a violent growth of profits), the American wage-worker, notwithstanding his strenuous efforts to adjust wages to these new price conditions, notwithstanding all his strikes, boycotts, and riots, notwithstanding all the picturesque I. W. W.-ism, new unionism, and the modish sabotage, has been losing surely and not even slowly, so that the sum total of economic progress of this country for the last quarter of a century appears to be a loss of from 10 to 15 per cent in his earning power.¹⁰

It may be argued that this result is due to the abnormal conditions of the price level. But after all, the changes in prices are as characteristic of the general economic conditions as are changes in wages. In so far as the quarter of a century intervening between the end of the Civil War and the period covered in this study witnessed a substantial increase in the real wages of the American wage-worker,¹¹ it was also largely due

¹⁰ The above analysis was carried only to the end of 1912. But it is equally significant that the food price level has increased from 154.2 in 1912 to 163.4, 9.2 points or 6 per cent, while, from Bulletin 143 it may be gathered that the average increase of wages in 63 trade-union occupations equalled only 2.5 per cent.

¹¹ This increase was, by far, not so large as is generally assumed—which the writer expects to demonstrate in another article, now in preparation.

to the changes (downward) of the price level. The last half century seems therefore to divide itself into two well-defined periods, as far as the changes in real wages are concerned.

They increased in the seventies and eighties, largely because of a falling price level. But as this increase occurred during a period of almost continuous business depression, it could scarcely result in a material improvement of the condition of the working class. The crisis of 1873 was followed by business depression which lasted in the United States until 1879. A very brief period of prosperity due to harvest failures in Europe quickly culminated in 1882, and by 1884 another crisis arrived.

During the period of increasing prosperity after the Spanish War, wages rose, but retail prices rose so much faster that the real wage level has materially suffered. The wage tendencies, therefore, seem to follow the price levels, though not perfectly. Instead of a continuous increase in the purchasing power of wages, so loudly proclaimed, we find falling prices increasing their purchasing power theoretically, but falling prices usually go hand in hand with business depression and unemployment. "Prosperity" brings higher wages, but still higher prices, so that the purchasing power of wages frequently falls in periods of prosperity.

There is a compensating factor in the better conditions of employment in "prosperous" times, just as increased unemployment largely nullifies the effect of increased purchasing power of wages in years of industrial depression. Very little American statistical material is available for an accurate measurement of the increase of annual earnings due to better conditions of the labor market. But it seems proper to point out that this factor must not be overestimated. The conditions of the American labor market find a natural corrective in years of prosperity in a rapid use of immigration. In so far as the data of the twelfth census concerning unemployment are at all reliable, they show a larger volume of it for 1899, when the wave of prosperity had begun, than in 1889.

The deductions made above may be branded as extreme. It will be pointed out that common observation does not fail to furnish evidences of an increased standard of living among the wage-workers. A hundred articles and services may be mentioned which were luxuries altogether unknown fifty years ago, and are now in everyday use by the wage-workers. It is enough to refer to bathtubs, gas and electricity, phonographs, pianolas, movies, etc.

The modern American wage-worker is better dressed and better housed than fifty years ago. The statement is often made that he is better fed, but that does not seem to be quite as certain. Does not all that of itself argue that earnings at present must be higher than they were thirty to forty years ago?

Most emphatically it does not. Many factors have served to increase the income or decrease the expenditure of the wage-worker's family without increasing the return for the labor of the individual wage-worker.

(1) Smaller families: For each 1,000 population, there were in 1880, 381 children under fifteen; in 1890, 355; in 1900, 345; and in 1910, 321. Thus in thirty years only, the proportionate number of children requiring support has decreased from 381 to 321, a decline of nearly 16 per cent. Taking children under five years only, the decrease was from 138 to 116; of children under one year only, there were in 1880, 33 per 1,000, and in 1910, 24 only, a decrease of 30 per cent. A further analysis of these figures would show that the decrease took place largely among native-born white families, and it is among just these families that an increased standard of living is to be found.

(2) Rapid development of woman labor: The percentage of women "gainfully employed" to the total number of persons gainfully employed, in 1870, was 13; in 1880, 16.6; in 1890, 18.1; in 1900, 18.5; and in 1910, according to the latest statistics of occupations, 21.2. While the latest figure seems somewhat exaggerated by an evident change of the method of enumerating woman agricultural laborers,¹² nevertheless even if the entire increase in this class be discounted from the total number of "women gainfully employed," the proportion of women gainfully employed still shows a substantial increase to 19.3 per cent.¹³

¹² The number of female agricultural laborers enumerated for the last four censuses was as follows:

1880—534,900

1890—538,065

1900—663,209

1910—1,522,133

¹³ 1,522,133 — 663,209 = 858,924 (Limit of possible overestimation in the number of female agricultural laborers)

8,075,772 — 858,924 = 7,216,848 (Corrected number of women gainfully employed)

38,167,336 — 858,924 = 37,308,412 (Corrected total of persons gainfully employed)

7,216,848 ÷ 37,308,412 = 19.3 per cent (Ratio of women to the total number of persons gainfully employed)

This increase is especially strong in the industrial population. The tendency to utilize cheap female labor in mercantile establishments and large offices has grown by leaps and bounds, and the rate of increase is also growing, as the following figures will demonstrate:

TABLE 10.—*Number of women employed in certain clerical and commercial occupations (000 omitted).*

Occupation	1870	1880	1890	1900	1910
Bookkeepers and accountants	8	30	28	74	185
Clerks and copyists			64	85	232
Stenographers	3	8	21	86	263
Saleswomen			58	149	250
Telegraph and telephone operators			8	23	96
Five occupations	11	39	179	417	1026

(3) Increase in employment of married women. In 1890 they numbered 515,260 or 4.6 per cent of all married women, and in 1900, 769,471 or 5.6 per cent. Similar data as to the distribution of employed persons by marital conditions were omitted from the thirteenth census so that it is impossible to ascertain accurately the increase in the number of employed married women during the last decade. But that such an increase has taken place is strongly indicated by the data in regard to occupations in which married women of the working class are to be found earning a subsidiary income.

TABLE 11.—*Number of women employed in certain occupations in which employment of married women is common (000 omitted).*

Occupation	1870	1880	1890	1900	1910
Laundresses	56	108	216	335	597
Nurses and midwives	11	14	41	109	193
Dressmakers	188	282	293	345	343
Milliners			61	86	128
Seamstresses			146	146	167
Five occupations	255	404	757	1021	1428

It cannot be claimed that all or a majority of these 1,428,000 women are married, but there is no doubt that a very considerable

proportion of them are.¹⁴ Wives of wage-workers do not go to work out of theoretical considerations as to the economic independence of women, or because of a sentimental longing for "self-expression." They do it either because they must, under pressure of a rising cost of living, or because they may thus improve the standard of the family, since improved conditions of housekeeping as well as the reduction in the size of families enable them to sell their leisure hours in the labor market.

With fewer children to support, with women young and old, married or unmarried contributing to the family budget, or at least partially relieving it of a certain share of the burden, the wage-workers of America were able to raise their standard of living, to lead a somewhat easier life. But this does not mean a larger return for their labor. As far as the purchasing value of their wages is concerned, it had probably increased slightly (though by no means as rapidly as is asserted) between 1870 and 1890. But since 1900 it has been rapidly falling. The purchasing powers of wages in 1913 are not much higher than they were in 1870. Even assuming the correctness of the figures derived from the Aldrich report, the increase for the last three decades was nil.

And yet the increase in the productivity of labor during the last three decades, especially as measured in consumer's values, was enormous. It is not at all necessary to quote figures to prove this contention.

The conclusion is inevitable that a much smaller share of the value reaches the wage-worker now than did twenty or thirty years ago.

I. M. RUBINOW.

¹⁴ In 1900, 19.7 per cent were married, and 22.1 per cent widowed.